

Swift Trail Parkway

SWIFT TRAIL PARKWAY

An Arizona Scenic Byway

CORRIDOR MANAGEMENT PLAN



Swift Trail

December 2011

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Corridor Management Plan



Sponsored by:
Arizona Department of Transportation

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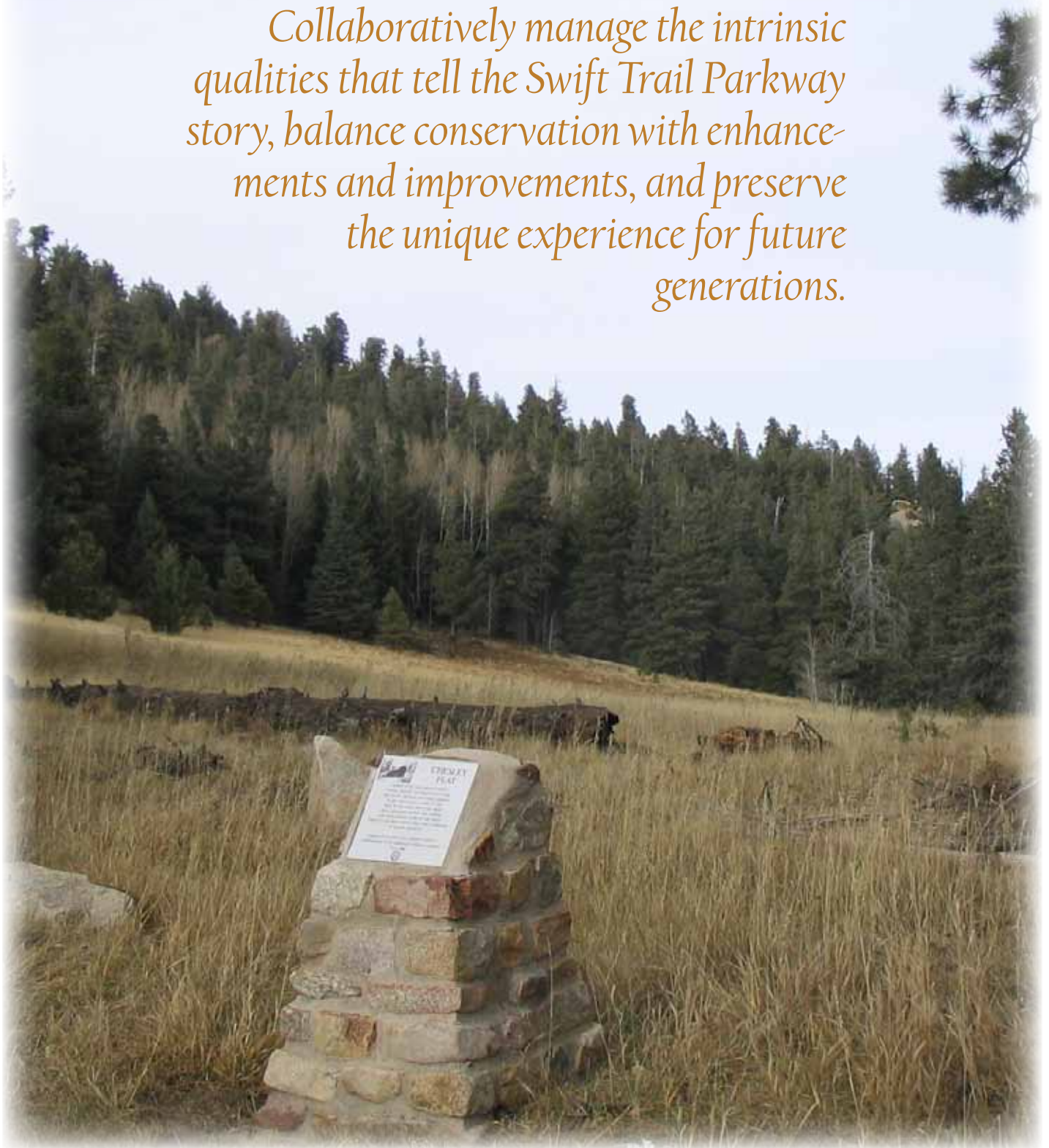
Federal Highway Administration

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The Swift Trail Parkway vision

Collaboratively manage the intrinsic qualities that tell the Swift Trail Parkway story, balance conservation with enhancements and improvements, and preserve the unique experience for future generations.



INTRODUCTION

Swift Trail Parkway (State Route [SR] 366), an Arizona Scenic Byway, is in southeastern Arizona in Graham County (see *Figure 1*). The road begins outside Safford, at the base of Mount Graham, and continues up the mountain to Riggs Flat Lake (see *Figure 2*). Officially, the parkway's limits are milepost (MP) 116, 2.3 miles beyond the intersection of US 191 and SR 366, to MP 142. However, for practical purposes, the plan study area encompasses the remaining portion of road (5.8 miles) to the Riggs Flat Lake turnoff (Forest Road [FR] 287) because the lake is the last of several scenic and recreational destinations that occur beyond the end of the Arizona Department of Transportation (ADOT) portion of the road. This parkway is unique because it climbs and traverses one of Arizona's sky islands. The scenery along the parkway can be best described as extraordinary.

Purpose of the Corridor Management Plan

Because more visitors are expected to visit Mount Graham in the future, having and implementing a plan to guide efforts to protect the mountain experience and environment are crucial. A corridor management plan can assist the various agencies interested in the parkway to manage, develop, conserve, and interpret the mountain's history and resources.

According to the Federal Highway Administration (FHWA) National Scenic Byways Program, the purpose of a byway corridor management plan is to document the goals, strategies, and responsibilities for preserving and enhancing a byway's most valuable qualities; it is not to create more regulations or taxes. Promoting tourism could be one target, but so may be issues of safety or protecting historic or cultural structures. A corridor management plan can:

- ▶ document community interest
- ▶ document existing conditions and history
- ▶ guide enhancement and safety improvement projects
- ▶ promote partnerships for conservation and enhancement activities
- ▶ present Native American perspectives and history
- ▶ suggest resources for project development and programs
- ▶ promote coordination among residents, communities, and agencies
- ▶ support application for National Scenic Byway designation

ADOT is sponsoring the preparation of the *Swift Trail Parkway Corridor Management Plan*; implementation is the responsibility of the stakeholder committee or its successors. The composition and structure of this committee ultimately will be determined by those who wish to become members.

The Corridor Management Planning Process

Scenic roads may be many things—they do not have to be pristine, naturally beautiful roads that stretch for miles. A road may have historic or cultural



Sky islands are isolated forested mountain ranges surrounded by desert and grassland valleys, similar to islands surrounded by water.



Figure 1: Swift Trail Parkway Location

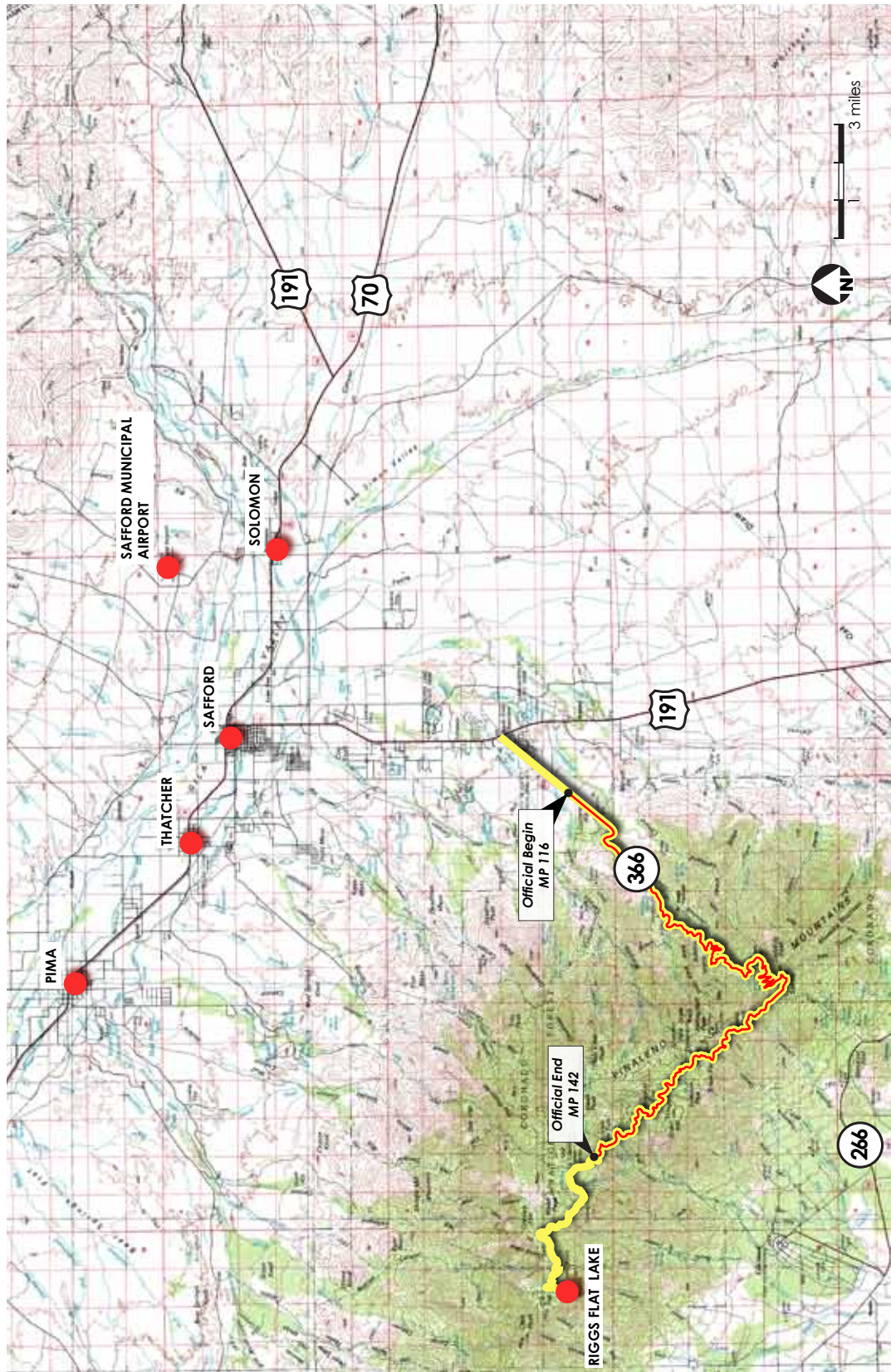


Figure 2: Vicinity of Swift Trail Parkway

significance, be a major recreational destination, or be a short, urban section with a rich history. What scenic byways share is being a special resource that a local community wants to preserve. Arizona has 26 state scenic byways—19 scenic roads, 4 parkways, and 3 historic roads (see *Figure 3*). Of the 26, five have national designation—two All-American road and three scenic byways. Parkway, as defined by ADOT, are roadways (or segments of a roadway) that meet scenic or historic road criteria, have a 1-mile minimum distance between access roads, allow visitor facilities/interpretive areas, and offer controlled access and adjacent development.

Local, state, tribal, or federal agencies or the private sector can request scenic designation for their special road. However, to apply for national designation, a road must have state or tribal designation and a corridor management plan. The corridor management plan is a written document developed to identify strategies to balance growth, tourism, conservation, and economic development. The plan does not solve every problem or issue but does suggest methods of doing so.

The corridor management planning process is a grass roots effort that comes from the community. The public participation process seeks to reach as many interested citizens as possible. Long-time residents are a valuable source of information for the planning process. A stakeholder committee made up of interested persons was initiated as part of the plan. It is this committee that will see that action items in the plan are carried out and that new action items are developed.

A corridor management plan:

- ▶ is a citizen-guided planning effort
- ▶ documents what makes the corridor special
- ▶ is a vision for corridor improvements that enhance the corridor's special resources
- ▶ offers a variety of ideas for incentive-based participation by willing property owners
- ▶ opens up new funding sources

A corridor management plan does NOT:

- ▶ regulate land uses along the corridor
- ▶ supersede local authority
- ▶ restrict private property rights
- ▶ dictate anything outside ADOT's right-of-way
- ▶ mandate new taxes

A corridor management plan provides benefit to the community by:

- ▶ increasing tourism
- ▶ identifying valued resources
- ▶ establishing long-term strategies and priorities
- ▶ creating a mechanism for jurisdictions and agencies to work together

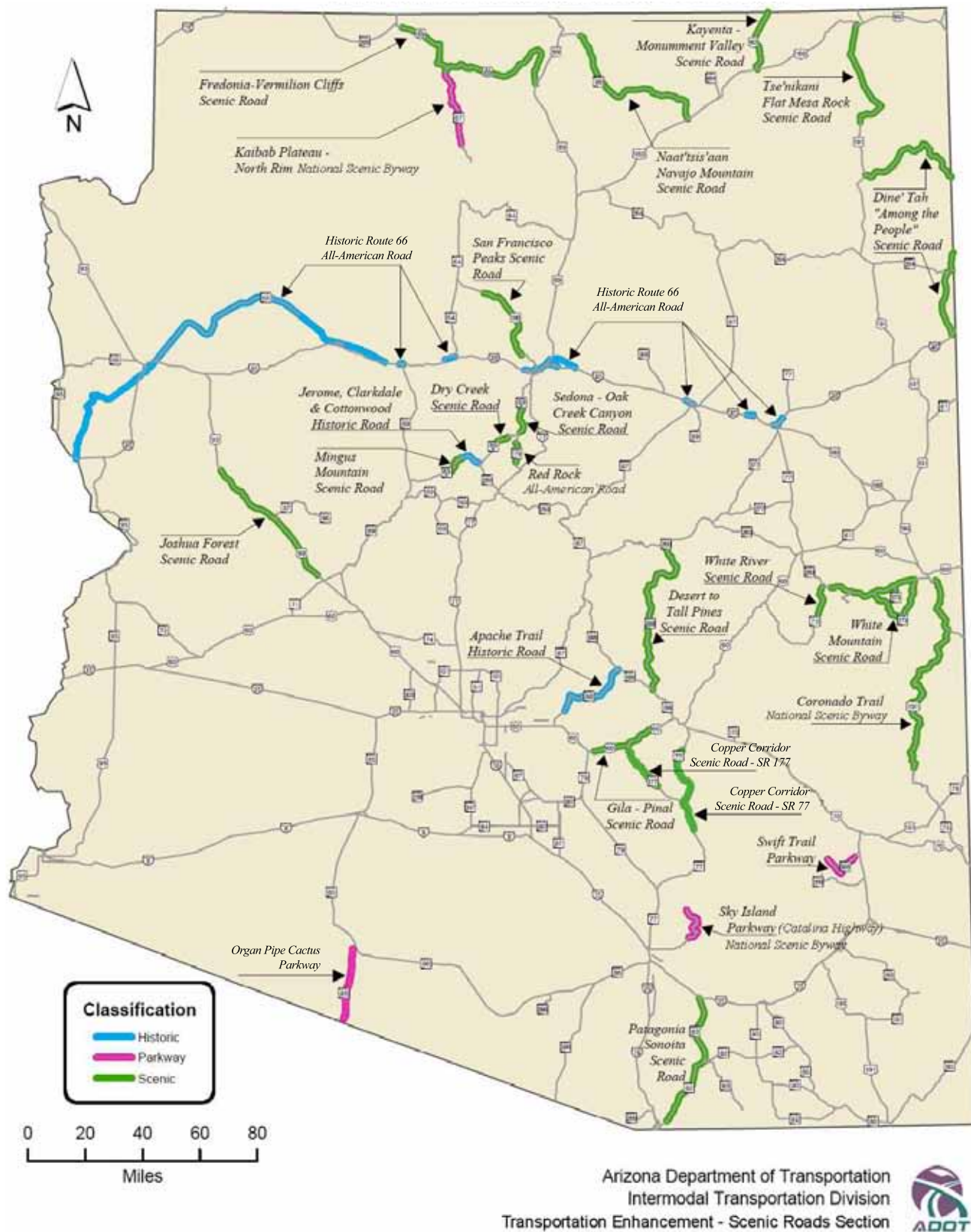


Figure 3: Arizona Scenic Byways

Stakeholder and Public Participation

Several meetings were held throughout the process to gather public comment and identify stakeholders interested in serving on the committee. The stakeholder committee represents, but is not limited to, agencies, including ADOT, Arizona Game and Fish Department, US Fish and Wildlife Service, USDA Forest Service, University of Arizona, and local cabin owner associations. Members of the stakeholder committee have volunteered their time and services, and the hope is that they will continue to do so in the future. The table below summarizes the meetings that were held.

Meeting	Date	Accomplished
Stakeholder meeting	April 11, 2006	Introduced the project; began to list intrinsic qualities; developed a vision statement
Stakeholder meeting	May 8, 2007	A second introduction meeting for stakeholders who could not attend the April 2006 meeting
Stakeholder and public meetings	October 24, 2006	Presented draft vision statement and drafted goals and objectives
Stakeholder workshop	October 10, 2007	Identified strategies and techniques for achieving the goals
Public meeting	January 2008	Reviewed draft plan
Public meeting	November 2011	Reviewed final plan

PARKWAY DESCRIPTION

Roadway

Swift Trail Parkway begins outside Safford and climbs 6,000 vertical feet up Mount Graham. The ADOT portion of the road is in a 200-foot-wide roadway easement inside Coronado National Forest. It is paved from its beginning, at MP 116, to MP 136.2 and continues as an unpaved road to approximately MP 143.2. The road continues as unpaved Forest Service roads to Clark Peak Trailhead on FR 803, with access to Riggs Flat Lake on FR 287. The road is two lanes—no curb, no bike lane, no shoulder, no guardrail—with numerous switchbacks (*Photo 1*).

The parkway begins on the east side of the mountain with vistas toward the Gila and Peloncillo Mountains, then continues around to the western side with views of the Galiuro Mountains. Swift Trail Parkway is the only access road to several campgrounds and day use areas, two cabin communities (Turkey Flat and Columbine) (*Photo 2*), and the Mount Graham International Observatory. There are no sidewalks or pathways and no bicycle facilities, and from November 15 to April 15 the Forest Service closes the upper portion of Swift Trail Parkway.



Photo 1: Typical switchback

Byway History

Native Americans

Historically, Native Americans, including the Anasazi, Hohokam, and Apache, have inhabited the region of Mount Graham. While descendents of the Anasazi and Hohokam (i.e., Hopi, Zuni, and O'odham) currently occupy other regions of the American Southwest, the Apache people continue to inhabit the Mount Graham region. Two major groups of Apache occupy the region, the Western Apache and the Chiricahua Apache. Historically, the Apache farmed, hunted, traveled, and conducted traditional cultural practices throughout the region. However, the socioeconomic system of the Apache was severely disrupted when they were barred from gaining access to their traditional hunting-gathering and agricultural areas by the influx of traders, trappers, and other newcomers. By the late 1800s, various federal reserves were established for the Apache. The San Carlos Apache Indian Reservation and White Mountain Indian Apache Reservation are north of Mount Graham. To this day, Mount Graham holds significant spiritual and traditional value to the Apache.

Spanish

The first recorded contact between the Spanish and Native Americans of the region occurred during the 1690s, when the Jesuit missionary Eusebio Francisco Kino visited the O'odham at a settlement near what is now San Xavier del Bac Mission.^{1,2,3,4} After initial contact, European influence was minimal until the mid-1700s, when the Spanish began establishing the Tubac and San Agustin de Tucson presidios. The San Agustin de Tucson presidio was fully operational and served as the focal point of the Spanish presence in the region until 1821, when Mexico won its independence and claimed its territories.⁵

Mexican

While the region was under Mexico's jurisdiction from 1821 to 1858, it was largely ignored and there was little economic growth.⁶ With the completion of the Gadsden Purchase of 1853, much of the region became part of the New Mexico Territory of the United States, and later, in 1863, part of the Arizona Territory.^{7,8} Economic growth was slow until 1865, when the start of the Civil War created a demand for precious metals and sparked a mining boom throughout the southern portion of the Arizona Territory.



Photo 2: Typical summer cabin

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- 1 Bolton, Herbert E., *Kino's Historical Memoir of Pimeria Alta*. University of California Press, Berkeley. 1948.
 - 2 Polzer, Charles W., *Blackrobes, Black Springs and Beyond*. In *Tucson: A Short History*. Southwestern Mission Research Center, Tucson. 1986.
 - 3 Sheridan, Thomas, *Enemies and Allies*. In *Tucson: A Short History*. Southwestern Mission Research Center, Tucson. 1986.
 - 4 Thiel, J. Homer, *Archaeological Investigations of Tucson Block 94: The Boarding House Residents of the Hotel Catalina Site*. Technical Report No. 93-5. Center for Desert Archaeology, Tucson. 1993.
 - 5 Bret Harte, John, *Portrait of a Desert Pueblo*. Windsor Publications, Woodland Hills. 1980.
 - 6 Polzer, 1986.
 - 7 Griswold del Castillo, Richard, *The Treaty of Guadalupe Hidalgo: A Legacy of Conflict*. University of Oklahoma Press, Norman. 1990.
 - 8 Sheridan, 1986.



Photo 3: Susanna Costner, an early area resident, on Swift Trail, 1920s

Source: Bill Harmon, ADOT

Anglo-Americans

The first Anglo-Americans, trappers and traders, entered the area in approximately 1826. During 1846, Lt. W. H. Emory of the US Army Corps of Engineers kept a record of the plants, animals, people, and climate of the Mount Graham/Gila Valley area. He was the first to sketch Mount Graham and was the first to refer to the mountain by its current name.⁹

The arrival of numerous Mormon farmers and ranchers during the late 1870s through 1915 brought significant capital and further expanded the farming and ranching industries in the area. A series of canals and water control features were constructed and agriculture, primarily cotton production, became, and still remains, a primary commercial activity in the region.¹⁰ The number of newcomers continued to increase in the early twentieth century, spurred on by mining ventures and development of transportation corridors.

The area's mountains provided lumber for building materials and employment for the growing area. Mount Graham also provided a cool retreat from the hot desert summers. Summer homes built around sawmills began to dot the mountain landscape so families could be closer to family members working at the mills.

The first roads up Mount Graham could accommodate only horses and mules (Photo 3). Later, the roads were widened to allow wagon access and then larger vehicles used to transport lumber down the mountain. In the 1920s, the road was further improved and became known as Swift Trail, named after Thomas T. Swift, a forest supervisor with Crook National Forest. In 1953, Crook National Forest came under the jurisdiction of Coronado National Forest (named after Francisco Vasquez de Coronado).¹¹

The Civilian Conservation Corps (CCC) was established in 1933 as a federal response to unemployment during the Great Depression. Soon after its inception, the CCC arrived in the Mount Graham area and began constructing roads, building and maintaining trails, putting in water systems such as those found at Wet Canyon and Soldier Creek, and building camps like those at Shannon and Arcadia.¹² Many of the improvements at the campgrounds, as well as hiking trails, roads, and other facilities still enjoyed by visitors along Swift Trail Parkway and on Mount Graham, were built by the CCC.

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⁹ Bertell and Weech, 2003.

¹⁰ Lundin, Deil and Matt McDermott, *Results of Archaeological Testing for Proposed 20th Avenue Improvements Between US 70 and Relation Street, City of Safford/Town of Thatcher, Graham County, Arizona*. EcoPlan Associates, Inc., Mesa. 2004.

¹¹ *Coronado National Forest Heritage*, Coronado National Forest, 2007. <<http://www.fs.fed.us/r3/coronado/forest/heritage/heritage.shtml>> (accessed on November 30, 2007).

¹² *A Little Bit of History*, 2007.

EXISTING CONDITIONS

Land Ownership

The majority of Swift Trail Parkway traverses National Forest land, managed by the Coronado National Forest, USDA Forest Service. The Forest Service has granted a 200-foot-wide easement to ADOT for use as the road's right-of-way. The portion of road from US 191 to the base of the mountain passes through private deeded land, then BLM or State land, before arriving at Forest Service land. The cabin communities on the mountain also lease their land from the Forest Service. The Mount Graham International Observatory site (currently 8.6 acres developed) is located inside the "Biological and Astrophysical Research Area" established by the Arizona-Idaho Conservation Act of 1988. The Research Area is approximately 150 acres and is roughly centered around Emerald Peak, the location of the Large Binocular Telescope—one of the world's most advanced telescopes.¹³

Regional Growth

Because land along Swift Trail Parkway is within the National Forest boundary, development impacts will be less than some other scenic roads might experience. However, growth is expected in the numbers of visiting tourists, overloading the already-crowded roadway and recreational facilities. This forecast growth is based on visitor data which show a continual year-to-year increase in tourist traffic.

Transportation

SR 366 is a highway in Graham County, Arizona, that runs from its junction with US 191, south of Safford, to near the summit of Mount Graham. It is a winding mountain road with one-half primarily a northwest-southeast route, the other half being northeast-southwest. SR 366 traverses sparsely inhabited forest and mountain terrain and does not pass through any cities or towns aside from minor settlements. The highway does provide access to the area near Mount Graham, one of the highest peaks in Arizona, and the Mount Graham International Observatory.

SR 366 is a paved (*Photo 4*) two-lane road from its junction with US 191 to MP 136.2 (approximately 22 miles) and a compacted dirt road (*Photo 5*) from MP 136.2 to MP 143.2. The paved road is approximately 24 feet wide. At regular intervals along the entire length of the route, there are paved and unpaved roadside sections that can be used as viewpoints and emergency stops.

This road operates to facilitate free-flow traffic, with no traffic control from MP 113.6 to MP 143.2 other than a stop-controlled intersection at MP 113.7. There are few major structures along the study route with the exception of a federal prison. This route has a posted speed limit of 55 miles per hour (mph) from the junction with US 191 to MP 117.5, a speed limit of 40 mph from MP 117.5 to MP 119.6, and a speed limit of 25 mph from MP 119.6 to MP 143.2.

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¹³ Large Binocular Telescope, Observatory, LBT Corporation, 2008. <<http://www.lbto.org/index.htm>> (accessed on October 05, 2011)



Photo 4: Paved section



Photo 5: Unpaved section

According to ADOT's Motor Vehicle Crash Listing, 27 crashes occurred along the Parkway from July 1, 2008 to July 1, 2011. There was one fatality and two incapacitating injuries during that time. The remaining accidents did not result in injury or resulted in non-incapacitating injuries.

ADOT's right-of-way is an easement granted by the Forest Service that was formalized in 1998. Almost the entire length of the study route is within USDA Forest Service land. ADOT has jurisdiction over the existing right-of-way throughout the project, which encompasses 100 feet on each side of the existing roadway center line.

Drainage is typically carried in roadside ditches that run along the toe of the cut slopes. These ditches are drained with corrugated metal pipe culvert crossings that often outlet to fill slopes. There are two significant drainage crossings in the paved section. The first is at Noon Creek (MP 121.1) and the second is at Wet Canyon (MP 123.7).

A separate ADOT study, *Initial Project Assessment and Inventory* (March 2007), reviewed road conditions and developed a prioritized list of possible projects.

There is no public transportation to or along the Swift Trail Parkway. The grade of Swift Trail Parkway, which is steeper than 5 percent, prevents an Americans With Disabilities Act-accessible pedestrian route up the mountain. The existing Forest Service trails are rugged, back country-type trails and are not accessible to persons with physical impairments.

Topography and Features

Mount Graham is in a range of mountains called the Pinalenos which is part of the Basin and Range province, a physiographic region geologically and topographically distinct from other parts of the West (*Photo 6*). The Basin and Range province has a characteristic topography familiar to anyone fortunate enough to come across it — steep climbs up long mountain ranges, alternating with long expanses of flat, dry deserts, over and over again.¹⁴ Within this province, the Earth's crust was stretched, resulting in a thinned and cracked crust that pulled apart, creating large, roughly north-south faults. Along these faults, mountains were uplifted and valleys down-dropped, producing the distinctive alternating pattern of linear mountain ranges and valleys.¹⁵ This topography was created approximately 30 million years ago.¹⁶

SR 366 traverses through Sonoran desert (basin) from approximately Swift Trail Junction to Cyclone Hill and then begins a steep climb into the Pinaleno Mountains. This mountain range is the southern extremity of the Rocky



Photo 6: Typical Basin and Range topography

14 *Physiographic Provinces of the United States*, US Geological Survey, 2000. <<http://www2.nature.nps.gov/geology/usgsnps/province/basinrange.html>> (accessed on August 22, 2007).

15 *Physiographic Provinces of the United States*, 2000.

16 R. J. Kamilli and S. M. Richard (editors), *Geologic Highway Map of Arizona* (Tucson: Arizona Geological Society and Arizona Geological Society, 1998).

Mountains and the northern extremity of the Sierra Madres. Traveling along SR 366, visitors pass several perennial streams (some associated with canyons such as Wet Canyon), and alpine meadows (*Photo 7*) such as at Hospital Flat, a cool mountain meadow carpeted with wildflowers and traversed by a small creek.

From SR 366, visitors can see two of the highest mountain peaks in southeastern Arizona—Mount Graham, with an elevation of 10,713 feet (*Photo 8*),¹⁷ and Heliograph Peak, with an elevation of 10,022 feet.¹⁸ Mount Graham rises 7,820 feet from the desert floor to its boreal forest summit. The high promontories of these mountaintops are a popular place for sightseers to visit as they enjoy one of the most wide-ranging views in the Southwest. Additionally, these areas serve as lookouts used to spot and help control forest fires and, in the case of Mount Graham, support one of the world's most powerful telescopes as part of the Mount Graham International Observatory.

As the Pinaleno Mountains formed, erosional forces such as wind and rain began to form canyons, leaving boulder-strewn areas. Near the end of SR 366, in the area near Soldier Creek and known locally as the “Ice Caves,” huge, house-sized rocks have tumbled together to form caves between the rocks (*Photo 9*). Some of the caves are so deep that ice can be found in their depths even in July and August.¹⁹

There are no natural lakes along SR 366; however, at the end of the road is man-made Riggs Flat Lake (*Photo 10*), a small picturesque lake, 11 acres in size and set in alpine forest and meadow.²⁰ Its cold waters are stocked during the summer with rainbow, brown, and brook trout.

Biology

Travel along SR 366 to Mount Graham provides the opportunity to experience five distinct biotic communities ranging from desert to boreal forest. The change in elevation from about 3,000 to more than 10,000 feet can provide visitors the opportunity to experience several outdoor environments in a single day's journey—hiking through the desert among cactus and colorful wildflowers in the morning, having lunch beside a mountain stream, and enjoying the snow later in the afternoon. The five biotic communities visitors pass through along SR 366 on the way to Mount Graham are the *Arizona Upland Sonoran Desertscrub*, *Semidesert Grassland*, *Madrean Evergreen Woodland*, *Rocky Mountain Montane Conifer Forest*, and *Rocky Mountain Subalpine Conifer Forest*. Additional biomes include the transition zones between these communities.²¹ SR 366 encompasses the greatest range of mountain life zones in North America that can be experienced on a single local road.

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¹⁷ Bertell and Weech, 2003.

¹⁸ *Coronado National Forest: Heliograph*. US Forest Service, 2005. <<http://www.fs.fed.us/r3/coronado/forest/recreation/trails/heliograph.shtml>> (accessed on August 22, 2007).

¹⁹ *Coronado National Forest Heritage*, 2007.

²⁰ *Coronado National Forest: Heliograph*, 2005.

²¹ Kamilli and Richard (eds.), 1998.



Photo 7: Mountain meadow



Photo 8: Pinaleno Mountains and Mount Graham
<http://www.surgent.net/highpoints/az/graham.html>



Photo 9: Ice Caves



Photo 10: Riggs Flat Lake

Boreal forests, as the name implies, are typically found in northern temperate zones such as Canada.



Photo 11: Arizona Upland Sonoran Desertscrub



Photo 12: Madrean Evergreen Woodland



Photo 13: Rocky Mountain Montane Conifer Forest
http://aro.as.arizona.edu/~tfolkers/pics/smt/snow_pics/dsc02329.JPG

Aldo Leopold is considered by many as the father of wildlife management and of the United States' wilderness system. Leopold's legacy inspires us to see the natural world "as a community to which we belong."

From Swift Trail Junction to about 2.7 miles southwest along Swift Trail Parkway, visitors encounter the first biotic community, the *Arizona Upland Sonoran Desertscrub* (Photo 11). At the lowest elevations in this community, about 1,000 feet, cacti such as barrel and many types of cholla are plentiful. As the visitor climbs within this biotic community, vegetation such as mesquite, ironwood, ocotillo, and catclaw become more prevalent.²²

As elevation increases, the *Arizona Upland Sonoran Desertscrub* gives way to the *Semidesert Grassland* biotic community. This transition begins to occur 2.7 miles from Swift Trail Junction and continues to the southwest another 3.5 miles. The *Semidesert Grassland* vegetation community is made up of a complex community of grasses, flowering annuals, shrubs, cacti, and agaves.²³ When the area experiences a wet fall and some rain in spring, both the desertscrub and grassland communities produce a profusion of blooms: California, Mexican, and Arizona poppies; lupine; sego lilies; wild verbena; owl's clover; blue bells; and an abundance of daisy species, with colors ranging from white to purple, paint the landscape.

Between Helldive Spring and Angle Orchard, the elevation increases to about 5,000 feet and the vegetation begins to transition into the *Madrean Evergreen Woodland* biotic community (Photo 12). This biotic community is dominated by oak-pinyon-juniper woodland, including Mexican juniper and alligator bark juniper. At higher elevations the vegetation becomes denser and is dominated by cyprus and Madrean pine. This area also experiences wildflower blooms in wet years. Thistle foxglove, wild violet, Canterbury bell, columbine, and many other flowers can grow at these elevations. Visitors experience the *Madrean Evergreen Woodland* biotic community for approximately 2 miles before transitioning into the *Rocky Mountain Montane Conifer Forest*.

As SR 366 climbs past elevations exceeding 6,000 feet, the vegetation transitions to *Rocky Mountain Montane Conifer Forest* (Photo 13). This community is dominated by ponderosa pine forest at lower elevations and, nearing its uppermost elevation of 9,000 feet, the forest becomes dominated by Douglas fir, white fir, limber pine, and aspens.

The last biotic community is the *Rocky Mountain Subalpine Conifer Forest*. This boreal or Hudsonian forest is characterized by coniferous trees. The boreal forest occurs at elevations between 9,000 and 12,000 feet and includes Mount Graham (10,713 feet). This subalpine community is dominated by spruce-fir-aspen forests. The top of Mount Graham is near the timberline and some of the trees on the peak are dwarfed from the harsh conditions. The summit of Mount Graham is crowned by the southernmost spruce-fir forest in North America.

Mount Graham is part of the 70,000-square-mile sky island region of southeastern Arizona, southwestern New Mexico, and northwestern Mexico. Sky islands are

²² Kamilli and Richard (eds.), 1998.

²³ *ibid.*, 1998.

often described as lush mountain islands floating in a desert sea.²⁴ The area is globally unique because of its rich diversity of species and habitats (more than half the bird species of North America, 29 bat species, 104 mammal species, and more than 3,000 plant species²⁵) and its history as the birthplace of Aldo Leopold's powerful conservation ethic (*see sidebar on page 12*).

The five different biotic communities and the Mount Graham sky island result in an abundance and variety of wildlife. There are approximately 480 species of birds in southeastern Arizona and most of them can be found in the area at different times of year (*Photos 14 and 15*).²⁶

Wildlife in the area includes whitetail deer, coatimundi (*Photo 16*), elk, wild turkey, fox, bobcat, mountain lion, coyote, raccoon, mule deer, javelina, black bear, and skunks, just to name a few potential sightings. In fact, Mount Graham itself is home to the densest concentration of black bears in the Southwest. There are several federally listed threatened and endangered species inhabiting the area, including the Mexican spotted owl and Mount Graham red squirrel. The Northern goshawk is a USFS Species of Concern. The sky island effect has resulted in 11,000 years of species isolation. During this period of isolation, processes of evolution left a treasure chest of biological diversity, producing a high rate of endemism. Eighteen globally unique plant and animal species have evolved in Mount Graham's Sky Island Hudsonian forest summit ecosystem. These include three mammals, three flowering species, three unique mollusks, and nine insects. Each has adapted for survival to subzero boreal forest winters. Many other species on Mount Graham remain to be identified.

One of the most famous of these unique species is the Mount Graham red squirrel (*Photo 17*), one of 25 subspecies of red squirrels found throughout North America. The Mount Graham subspecies, found in the *Rocky Mountain Montane Conifer Forest* and the *Rocky Mountain Subalpine Conifer Forest*, was thought to have been extinct in the 1950s, but small numbers of squirrels were "rediscovered" in the 1970s. In 1986, the population of Mount Graham red squirrels was estimated to be fewer than 400. In 1987, in response to the low numbers of this unique subspecies, the US Fish and Wildlife Service added the squirrel to the federal endangered species list, and in 1990 designated critical habitat for the animal to ensure its conservation.²⁷ The Mount Graham red squirrel has been isolated from other subspecies of red squirrels since the end of the Pleistocene glacial periods (i.e., for about 10,000 years).

24 Arizona Wilderness Coalition, No Date. <<http://www.azwild.org>> (accessed on August 21, 2007).

25 *Explore Our Sky Islands*, Sky Island Alliance, 2007, <<http://www.skyislandalliance.org/explore.htm>> (accessed on November 14, 2007).

26 Bertell and Weech, 2003.

27 Bruce Walsh, *The Mount Graham Red Squirrel*. <<http://medusa.as.arizona.edu/graham/envir.html>> (accessed on August 21, 2007).



Photo 14: Mexican jay



Photo 15: Vermilion flycatcher



Photo 16: Coatimundi



Photo 17: Red squirrel

Source: <http://medusa.as.arizona.edu/graham/squir1.gif>

Endemism-The ecological state of being unique to a place.

National Natural Landmarks

There are no national natural or historic landmarks in the area.

Signs and Billboards

There are no obtrusive signs or billboards along Swift Trail Parkway. However, there are many small signs which are inconsistent in format (*Photo 18*).

Wayfinding and tourism often go hand in hand. For tourists to enjoy their visit and for locals to not be inconvenienced by wandering tourists, standardized wayfinding and directional signs can be very beneficial.



Photo 18: Inconsistent sign style formats

BYWAY INVENTORY

Intrinsic Qualities

The FHWA National Scenic Byways Program recognizes and promotes six intrinsic quality values. Each of these values influences our experience, but together they create a synergistic experience that is greater than the sum of the parts. A comprehensive inventory and assessment of a corridor's intrinsic qualities includes the following six categories:

Category	Description
Natural	features of the visual environment in a relatively undisturbed state
Scenic	a dramatic and memorable landscape of strikingly distinct character, whether natural or man-made
Historic	legacies of the past distinctly associated with physical elements of the landscape which educate and inspire appreciation for the past
Recreational	outdoor recreational activities directly dependent on the landscape's natural and cultural elements
Cultural	experiences of traditions, beliefs, folklore, and art
Archaeological	physical, visual evidence of prehistoric life or activity that can be inventoried and interpreted

These qualities define the byway's character, interest, and appeal to area residents and visitors. Many of the qualities found along the Swift Trail Parkway are identified in *Figure 4*, on page 16.

The basis for the Swift Trail Parkway designation rests primarily in its natural, scenic, historic, and recreational intrinsic qualities. The cultural and archeological qualities, although not as many or as visible, add to the richness and diversity of the parkway. The qualities include:

Natural (N) – the biotic zones; a national forest; diverse plant and animal species due to the sky island effect

Scenic (S) – scenic views (*Photos 19 and 20*); CCC facilities; fruit orchard; autumn leaves and summer meadows

Historic (H) – many historic spots from the long history of people using the mountain to escape the valley heat and for the scenery; timber industry

Recreational (R) – myriad activities available (hiking, camping, picnicking, mountain biking, fishing, hunting, summer cabins, cross country skiing, birding)

Cultural (C) – Mount Graham Hill Climb, annually in September; sacred to Native Americans; source of medicinal plants



Photo 19: View looking west



Photo 20: View looking east

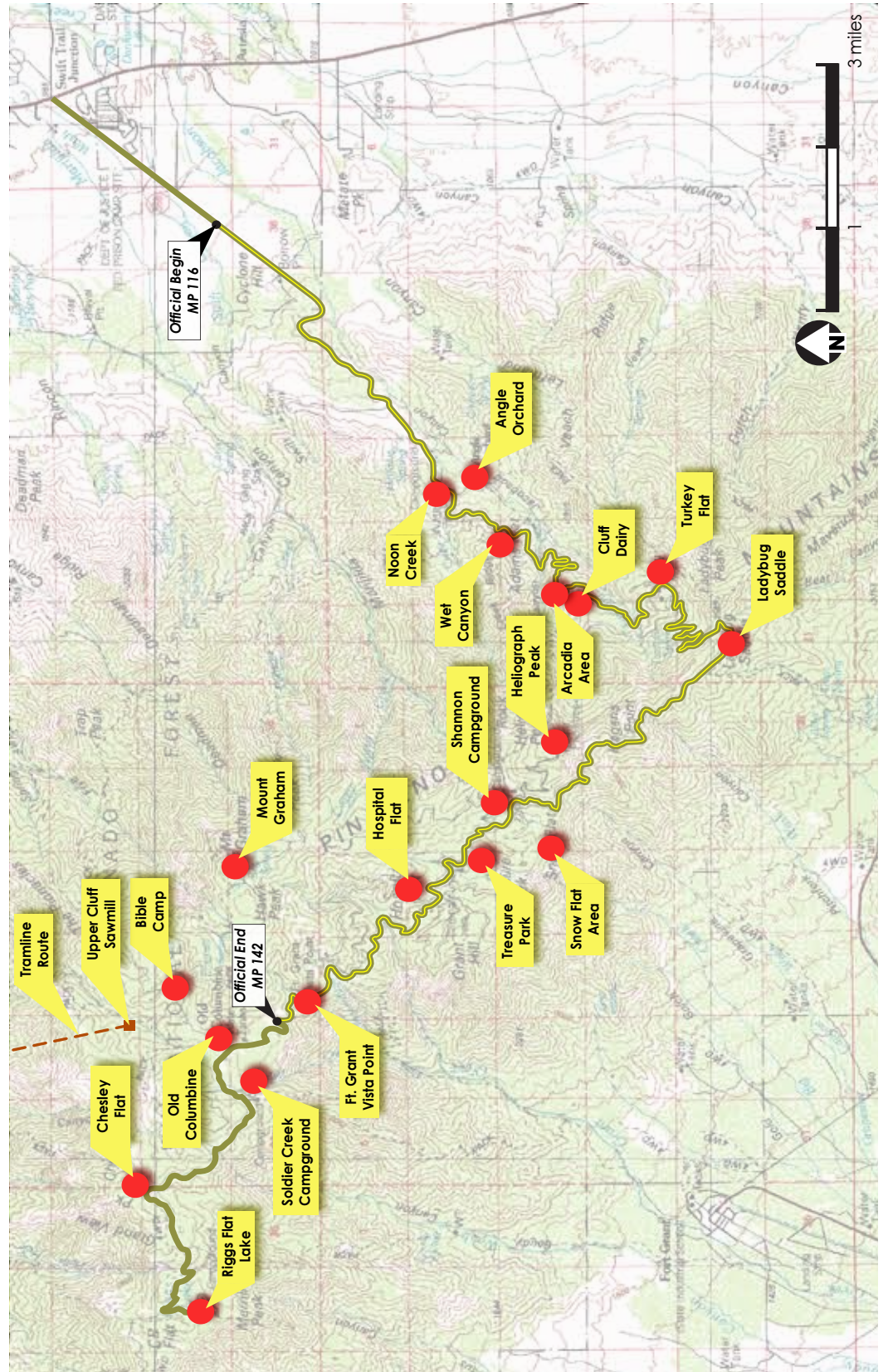


Figure 4: Intrinsic qualities

Following are summaries of the special features found along Swift Trail Parkway that were identified by citizens who attended the public or stakeholder meetings. It is not a comprehensive list of all the features that can be found there. Each feature is categorized (in parenthesis) according to which intrinsic quality criteria are met.

Noon Creek (S, N)

Noon Creek Picnic Area is located approximately 7 miles past Swift Trail Junction (MP 121.0). The area was named because when pioneer settlers who were traveling by horse and wagon from Safford at sunrise traversed the Pinaleno Mountains, this was usually as far as they were able to get by lunch time of the first day.^{28,29} Noon Creek became a traditional lunch stop along the historic route into the Pinalenos and was a popular picnic spot until it was flooded out in 2005.

Noon Creek also was the site of one of several CCC-built campgrounds. The Noon Creek site opened in 1933 and served as a prisoner of war camp during World War II.³⁰

Angle Orchard (H, S)

According to Chris Angle of Angle Orchard, between 1910 and 1920 someone enjoyed a peach and left the pit on the ground. The resulting tree grew and bore fruit even in years when other fruit trees in the valley froze. Andrew Angle, who lived at the base of Mount Graham, decided that the area would be a good place to start an orchard (*Photo 21*). In 1922, the Forest Service granted him a lease for 12 acres of land. Today, hundreds of people go to Angle Orchard to pick peaches and apples while others eagerly anticipate the arrival of Angle apples in their local supermarkets.³¹ Angle Orchard, located 7 miles past Swift Trail Junction (MP 121.4), is still a family business operated by Betty Angle Larson, the granddaughter of Andrew Angle.³²

Wet Canyon (H, S, N)

Wet Canyon is located approximately 10 miles from Swift Trail Junction (MP 123.6). A small, perennial stream flows down the mountain in a series of little rocky waterfalls, including at the Wet Canyon picnic area. Only three picnic sites (*Photo 22*) are available here; each terraced into the mountainside in the shade of large trees and creating an intimate atmosphere.³³

This mountainside oasis attracts many birds and contains deciduous trees which turn to red, amber, and gold in the fall. In the winter, snow can sometimes be found along the creek. Wet Canyon also is home to the Wet Canyon talussnail, a land

28 Riggs Flat Lake. Coronado National Forest, 2007. <<http://www.fs.fed.us/r3/coronado/forest/recreation/lakes/riggs.shtml>> (accessed on September 4, 2007).

29 Arizona Swift Trail (adapted from the FalconGuide "Scenic Driving Arizona by Stewart Green). The Weather Channel, 2007. <<http://www.weather.com/outlook/driving/scenicdrives/?sd-azswift.jsp¶m1=USAZ0193>> (accessed on September 5, 2007).

30 The Civilian Conservation Corps, (Washington: United Department of Agriculture, 1997).

31 Bertell and Weech, 2003.

32 History of Angle Orchard. Angle Orchard, 2007. <<http://angleorchard.com/welcome.htmlA>> (accessed on September 4, 2007).

33 Riggs Flat Lake, 2007.



Photo 21: Andrew and Viola Angle, the first owners of Angle Orchard.

Source: Angle Orchard website



Photo 22: Wet Canyon picnic sites



Photo 23: Wet Canyon bridge built by the CCC

snail that is found only in the 1-mile reach of the canyon. Wet Canyon talussnails occupy scree (small broken rocks) slopes composed of rocks high in calcium carbonate along north-facing banks of the stream in Wet Canyon. The Forest Service, Arizona Game and Fish Department, and the US Fish and Wildlife Service have initiated discussions to address conservation of the species.

The bridge at Wet Canyon (*Photo 23*) is one of the numerous facilities on the mountain built during the 1930s by the CCC or WPA (Works Progress Administration).

Arcadia Area (H)

Approximately 11.5 miles from Swift Trail Junction (MP 125.5) is Arcadia Campground. When early settlers traveled toward Mount Graham, the Arcadia area was usually as far as they made it on the first day. By the 1930s, Arcadia was the site of one of several CCC camps established to provide jobs for workers from all over the country unemployed during the Great Depression. Treasure Park and Columbine were used as CCC camps during the summer months and Arcadia, Noon Creek, and other sites were used during the winter months. Several of the improvements to campgrounds, hiking trails, roads, and other facilities were built by the CCC.³⁴

Today, Arcadia Campground is the first large campground visitors come across on their way up Mount Graham. The campground has 19 individual campsites, 1 reservation-only group site, picnic tables, fire grills, drinking water, and restrooms. Arcadia Trail starts at the campground and leads up the mountain to Shannon Campground. A 1-mile spur off Arcadia Trail leads to the summit of Heliograph Peak.³⁵

Cluff Dairy (H)

Located halfway up Mount Graham (about 12 miles from Swift Trail Junction [MP 126.2]), in a small flat area just off the road, is the former site of Cluff Dairy and its predecessor, the Jacobson Sawmill.³⁶ In the 1930s, the sawmill was sold and by the mid-1930s, removed. At this time, Alfred and Ellie Cluff obtained a site lease from the Forest Service and the Cluff family constructed a home on the flat area, where the Jacobson logging camp had once existed.³⁷ The Cluffs planted more than 400 fruit trees, berry shrubs, and vegetables and, at Christmas time, sold Christmas trees.³⁸ The cows they raised and milked gave the area the name Cluff Dairy. The Cluffs sold their produce to nearby residents in Turkey Flat and in the Gila Valley. Alfred and Ellie worked the dairy for 26 summers before retiring.³⁹ The Cluff children continued to work the dairy for several years. Except for Angle

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³⁴ *A Little Bit of History*, 2007.

³⁵ *Riggs Flat Lake*, 2007.

³⁶ *Jacobson Sawmill*, Hike Arizona, 2007. <<http://hikearizona.com/decoder-PF.php?ZTN=1055>> (accessed on September 4, 2007).

³⁷ Bertell and Weech, 2003.

³⁸ *ibid.*, 2003.

³⁹ *ibid.*, 2003.

Orchard, Cluff Dairy was the longest lasting and largest agricultural operation on Mount Graham.⁴⁰ The Forest Service reclaimed the area in the 1960s.

Today, scattered fruit trees and concrete foundations can be found at the old Cluff Dairy site, while a few rusted relics mark the location of the Jacobson Sawmill a short distance away. The Forest Service reports that this area is quite popular with black bears.⁴¹

Turkey Flat (H)

About a mile south of Cluff Dairy (MP 127.9) is Turkey Flat, a small community consisting of 70 summer cabins nestled into the side of Mount Graham. The Turkey Flat area was developed by William Deal and Joe Bassett in the 1920s. They built a log cabin and planted vegetables in the area. They were soon followed by approximately four other families. The summer population at Turkey Flat grew considerably when in 1930 the Forest Service and the CCC built a road into the area. Once the road was constructed, the Forest Service offered cabin sites at Turkey Flat; the 72 sites were occupied very quickly as people used the area to escape the summer heat in the Gila valley.⁴² The cabins continue to be leased for use during the summer months, many by fourth and fifth generation families.

Ladybug Saddle, Trail, and Peak (H, S, R)

Ladybug Saddle (MP 131.0) is reached after 17 miles of steady climbing to an elevation of almost 8,500 feet. At the highway pull-out, hikers can take the short Ladybug Trail east to the craggy summit of Ladybug Peak (8,780 feet).^{43,44} The area gets its name because in summer a large number of these small, black-spotted, orange beetles swarm among the rocks and trees; they are especially dense on Ladybug Peak.⁴⁵ At one time, people went up to Ladybug Peak to collect bags or boxes of ladybugs as insect control (e.g., aphids, mites) for their farms or gardens.⁴⁶

In addition to the ladybugs, the trail is a good place to see signs of black bear or even get a glimpse of the animal itself.⁴⁷ Virtually all of the upper slopes of the Pinaleno Mountains are excellent bear country and are home to one of the densest concentrations of black bears in North America.⁴⁸

Ladybug Peak offers magnificent views of southern Arizona, including views of SR 366 as it snakes its way up the mountain, the town of Safford, the Gila River, the White Mountains, and range upon range of sky islands—the Chiricahuas, Galiuros, Dragoons, Santa Ritas, Rincons, and Catalinas.^{49,50}

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⁴⁰ *ibid.*, 2003.

⁴¹ *Jacobson Sawmill*, 2007.

⁴² Bertell and Weech, 2003.

⁴³ *Arizona Swift Trail*, 2007.

⁴⁴ *Riggs Flat Lake*, 2007.

⁴⁵ *ibid.*, 2007.

⁴⁶ Bertell and Weech, 2003.

⁴⁷ *Riggs Flat Lake*, 2007.

⁴⁸ *ibid.*, 2007.

⁴⁹ *Arizona Swift Trail*, 2007.

⁵⁰ *Riggs Flat Lake*. Coronado National Forest, 2007. <<http://www.fs.fed.us/r3/coronado/forest/recreation/lakes/riggs.shtml>> (accessed on September 4, 2007).



Photo 24: The towers on Heliograph Peak
 Source: www.surgent.net/highpoints/az/graham.html

Heliograph Peak (H)

In the mid-1880s, a U.S. Signal Corps officer named Colonel William A. Glassford established a signal system on mountaintops throughout southeastern Arizona and southwestern New Mexico. This system used mirrors, or heliographs, to flash Morse code messages from Fort Bowie to Fort Apache to relay news and information. Heliograph Peak, as one of the highest mountains in southeastern Arizona, served as one of the peaks in that relay system. In 1886 or shortly thereafter, the heliograph system was abandoned along with the forts.^{51,52}

Today, Heliograph Peak continues its tradition as a link in a communication system. Atop Heliograph Peak, which one reaches from the spur road to Shannon Campground (see below), is a 100-foot-tall steel tower (*Photo 24*) built by the CCC in 1933,⁵³ which acts as a lookout to spot and help control forest fires.⁵⁴ The tower is staffed during the critical fire season.⁵⁴ Heliograph Peak is also the location of radio, television, transmission relay, telephone connections, and a relay station for local police radio transmissions.⁵⁵ In addition to Heliograph Peak's role in history and as a modern fire detection system, it is one of the best places to get a birds-eye view of southern Arizona.

Snow Flat (S)

Snow Flat is a flat, or meadow, located on the southern side of Mount Graham. Snow Flat is reached from a narrow, 1-mile-long spur road that heads west from Swift Trail Parkway (MP 135.2) and drops down to Snow Flat. There is a small, picturesque lake at Snow Flat that makes an ideal picnic spot. Primitive camping also is allowed by permit.⁵⁶ Snow Flat was formerly the location of a Boy Scouts of America camp.

Shannon Campground (H, R)

A mile past Snow Flat (MP 135.8), a spur road turns right to Shannon Campground. This campground is small (about 10 sites) and nestled along the upper reaches of Marijilda Creek, a small stream that winds through tall trees and green grass.⁵⁷ Shannon was developed by the CCC, including the installation of tables, fireplace grills, and two three-sided wood shelters of the type originally developed in the Adirondack Mountains of New York; this adds to the historic atmosphere of the campground.⁵⁸

From Shannon Campground, the visitor can take the Arcadia Trail, a National Recreation Trail, that leads to a 1-mile spur and the top of Heliograph Peak.

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 51 Riggs Flat Lake, 2007.
 52 Bertell and Weech, 2003.
 53 *ibid.*, 2003.
 54 Riggs Flat Lake, 2007.
 55 Bertell and Weech, 2003.
 56 Arizona Swift Trail, 2007.
 57 Riggs Flat Lake, 2007.
 58 Bertell and Weech, 2003.

Treasure Park (H)

A story written in 1948, describes how nine burro loads of gold and silver bullion were stolen from mines in Mexico in the 1800s.⁵⁹ This treasure is thought to be buried somewhere on Mount Graham, perhaps in the vicinity of Treasure Park. According to the legend, there was a set of three stone markers—red, blue, and grey granite—forming a triangle. In 1907 these markers were found, but digging in the vicinity produced no treasure. It is now thought that these markers are guides, pointing to the treasure, rather than being the actual location of the treasure.

In yet another story, there is a description of an old document written in seventeenth-century Spanish that is supposed to tell the story and location of treasure stolen from caravans, ranches, and mines in the area. The treasure included doubloons, bullion, and jewelry that supposedly was hidden on one of the biggest mountains in the center of northern Sonora called Bonita Peak (Spanish reference to Mount Graham).⁶⁰ The document is said to have been a map passed down through the centuries. In the late 1970s, treasure hunters with a piece of paper, presumably the map, went to the mountain in search of the treasure, unsuccessfully. No one knows who has the map today.

Visitors attempting to locate the lost treasure of Mount Graham may not successfully find gold and silver bullion, but they will be rewarded with cool weather and beautiful surroundings.

Treasure Park, MP 137.0, also was the location of one of several CCC campgrounds and opened on May 23, 1933. It was open for only two summers. Enrollees from this campground worked on lookout towers at Heliograph, West, and Webb Peaks.⁶¹

Hospital Flat (H, S, R)

Beyond Treasure Park, the road drops down to grassy Hospital Flat (MP 137.2). This area was so named because during the 1880s it served as a summer field hospital for Fort Grant soldiers wounded during encounters with the Apache.⁶² The cool mountain air was thought to be more recuperative than Fort Grant, which was on the southwestern flank of the Pinaleno Mountains. Many of the civilian personnel from Fort Grant also used Hospital Flat to escape the summer heat of their desert outpost.⁶³ The camp was originally made up of tents, but in 1887 log buildings began to replace the tents. Today, none of these structures remain. What does remain is the cool mountain meadow carpeted with wildflowers in the summer and a small creek. There are ten campsites at Hospital Flat.

Mount Graham (H, S, N, C)

Mount Graham is the highest peak in the Pinaleno Mountains. The peak was named during the Mexican-American War by Lt. William Emory, a scientist with

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⁵⁹ Bertell and Weech, 2003.

⁶⁰ *ibid.*, 2003.

⁶¹ *The Civilian Conservation Corps*, 1997.

⁶² *Arizona Swift Trail*, 2007.

⁶³ Bertell and Weech, 2003.

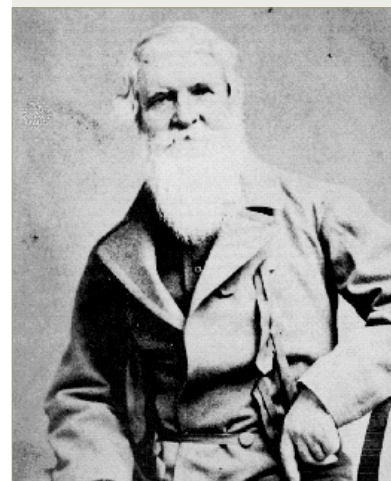


Photo 25: James D. Graham
Source: Mount Graham International Observatory

the Army Corps of Topographical Engineers. In his journal and on the map of his trip he referred to the mountain as Mount Graham—for his friend and fellow officer, Lieutenant Colonel James Duncan Graham (*Photo 25*).⁶⁴ The name stuck, and later Graham County was named after Mount Graham.

Mount Graham and the Pinaleño Mountains are different from the other peaks in the area, which are volcanic in origin; Mount Graham was created when the last glaciers receded. Unlike the lava-based mountains, which tend to be barren or contain only low shrubs, Mount Graham has an abundance of trees dating back to antiquity.⁶⁵ Researchers from the University of Arizona Tree Ring Laboratory have discovered living trees dating back to AD 1257 and 1270. Scientists also have found dead Douglas firs dating back to AD 1102.⁶⁶

Mount Graham, known as Dził Nchaa Si An (Big Seated Mountain) by Native Americans, is revered as a sacred site of tremendous cultural significance as the home of the Ga'an (mountain spirits).⁶⁷ For the San Carlos and White Mountain Apache tribes, Mount Graham is considered the embodiment of spiritual energy, not as a specific place. The Mount Graham range was declared eligible for listing in the National Register of Historic Places as a “traditional cultural property” in July 2001.⁶⁸

Mount Graham International Observatory (R)

Mount Graham International Observatory is a division of Steward Observatory, the research arm for the Department of Astronomy at the University of Arizona. The Mount Graham International Observatory site houses three telescopes—the Large Binocular Telescope (one of the world’s most powerful telescopes), the Vatican Advanced Technology Telescope (sometimes referred to as “the Pope Scope”), and the Heinrich Hertz Submillimeter Telescope, which receives radio signals. The turnoff to the observatory is at MP 142.3.

Old Columbine (H, R)

In 1933, Swift Trail road was completed to Old Columbine (MP 143.2), a logging community originally settled by Mormons. Upon arrival, and needing lumber to build homes, they built a sawmill. Once lumber was available, log cabins and eventually a community with a school and church/multipurpose building developed. The community was named after a small mountain flower— the columbine.⁶⁹

Columbine was a CCC campground that opened in 1934 and was primarily a tent camp. A major project of this camp was the continuation of Swift Trail road from

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⁶⁴ *A Little Bit of History*, 2007.

⁶⁵ *Mount Graham*, Student Environmental Action Coalition-Southwest (SEAC), No Date. <<http://www.seac.org/seac-sw/mtg.htm>> (accessed on September 10, 2007).

⁶⁶ *Mount Graham*, (SEAC), 2007.

⁶⁷ *ibid.*, 2007.

⁶⁸ *Mt. Graham*, Sacred Land Film Project, 2007, <http://www.sacredland.org/endangered_sites_pages/mt_graham.html> (accessed on December 6, 2007).

⁶⁹ Bertell and Weech, 2003.

Hospital Flat to Riggs Flat Lake.⁷⁰ Today, Old Columbine includes 14 summer homes.

Bible Camp (H)

The road to the Bible Camp is located off Swift Trail Parkway at approximately MP 143.2. In 1879, the first Mormons arrived in the Mount Graham area.⁷¹ Their primary need was for lumber to build houses so they built a sawmill. As soon as it was possible to get the needed logs, many families made permanent log cabin homes in the mountains. Because they were predominantly Mormon, weekly church services were held. Today, the site that was the old sawmill that first assisted Mormon settlement on Mount Graham is now known as the Arizona Church of Christ Bible Camp.

Soldier Creek Campground (H, S, N, R)

The Soldier Creek Campground entrance is located at MP 143.7, approximately 30 miles beyond the Swift Trail Junction, and, at 9,300 feet, is the highest point on SR 366.⁷² The 12 campsites at Soldier Creek are in a forest grove where naturally sculpted large granite boulders help separate and differentiate the campsites. Not far from camp, an abrupt drop-off provides a view of the lower slopes of the Pinalenos, Aravaipa Valley, Sulphur Springs Valley, and the Galiuro and Winchester Mountains. Soldier Creek Campground is one of the most popular along SR 366 because it is one of the coolest areas on the mountain.⁷³

Soldier Creek gets its name from one of the large granite rocks, Soldier Rock. Visitors can climb Soldier Rock where spectacular views awaits.

In 1933, CCC crew member built a main building for themselves that later became a mess hall for prisoners during World War II. This building was demolished in the 1960s after a period of disuse.⁷⁴

Upper Cluff Sawmill (H)

The turnoff to the Upper Cluff Sawmill is located on the north side of SR 366 about 30 miles from Swift Trail Junction. This sawmill was built by the Cluff brothers. The mill began operating in the 1890s and continued through the 1920s.⁷⁵

Chesley Flat (H, N)

Chesley Flat is located toward the end of SR 366, MP 145.5, northeast of Riggs Flat Lake. This large meadow (*Photo 26*) is named for Abner and Sarah Chesley, who met and were married on Mount Graham in 1883.⁷⁶ The Chesley family built a log cabin

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⁷⁰ The Civilian Conservation Corps, 1997.

⁷¹ Bertell and Weech, 2003.

⁷² Arizona Swift Trail, 2007.

⁷³ Riggs Flat Lake, 2007.

⁷⁴ Bertell and Weech, 2003.

⁷⁵ Bertell and Weech, 2003.

⁷⁶ Riggs Flat Lake, 2007.



Photo 26: Chesley Flat meadow



Photo 27: Riggs Flat Lake



Photo 28: CCC-built steps at Riggs Flat Lake

in the 1890s and operated a small dairy. The cabin was demolished in 1956 because it posed a fire hazard to the area.⁷⁷

Riggs Flat Lake (S, N, R)

Riggs Flat Lake is located at the end of Swift Trail Parkway (MP 147.5); it is the most popular camping and fishing spot near Mount Graham.⁷⁸ This small, picturesque lake (Photos 27 and 28) was built in 1957, is 11 acres in size, and is set in alpine forest and meadow.^{79,80} The lake's cold waters are stocked during the summer with rainbow, brown, and brook trout, and anglers report that the fishing is usually good. Fishing can be done from small boats or from shore. After fishing, visitors can enjoy hiking trails; a camping area with 24 sites, water, and restrooms; and/or picnicking using tables and fire grills. SR 366 continues another 2 miles past Riggs Flat Lake and dead ends at Clark Peak, site of one of the worst fires in the area's history (see page 28).

The Mount Graham Aerial Tram Route (H)

In June 1923, the farming communities of the Gila Valley began to need lumber; this coincided with the ponderosa pine, Douglas fir, and steam sawmill up on nearby Mount Graham. Several attempts to move the sawed lumber from Mount Graham to the valley were made. Previous attempts included logging flumes that turned out to be unworkable because of extreme topography, lack of water, and bad engineering, and a wagon toll road that proved to be so arduous that it priced the lumber out of nearby markets. The solution seemed to be to send the boards up through the air and thus, the Mount Graham Aerial Tramway was built.⁸¹ The tramway, which began at the Old Columbine Mill site and ended at the Pima terminal, was a feat of engineering; its total length was 7.5 miles and its total change in elevation was 5,804 feet, or more than one vertical mile.⁸² The tram was of simple design and technology, made of wood and a few pieces of low-grade cast iron. Although the number is arguable, it is thought that approximately 90 towers were erected. The aerial tram was shut down 1 year after it started operation.

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⁷⁷ Bertell and Weech, 2003.

⁷⁸ *Arizona Swift Trail*, 2007.

⁷⁹ *Riggs Flat Lake*, 2007.

⁸⁰ *Arizona Swift Trail*, 2007.

⁸¹ Don Lancaster, *The Mount Graham Aerial Tramway*. <<http://www.tinaja.com/glib/gramtram.pdf>>, (1995) (accessed on September 6, 2007).

⁸² Don Lancaster, 1995.

The reasons for the shutdown included economic problems with the sawmill, continuous repairs/downtime of the tram, and the relatively high cost-per-board.

Tourist Amenities

Recreation

Mount Graham is an Arizona recreational resource. People come from both major metropolitan areas (Phoenix and Tucson) as well as from nearby towns and villages. There are several campgrounds and picnic areas and miles of trails (listed below and shown in *Figure 5*). Recreational activities include birding, hunting, fishing, boating, hiking, mountain biking, and cross country skiing.

Location	Sites	Toilets	Amenities	Open	Other
Noon Creek Picnic Area	15	Vault	Tables and fire grills	Year-round	
Wet Canyon Picnic Area	3	Vault	Tables and fire grills	Year-round	
Round the Mountain Picnic Area	3	Vault	Tables and fire grills	Year-round	Three-stall horse corral; access to Round the Mountain Trail
Arcadia Campground	19 individual; 1 group	Vault	Tables and fire grills	April 1 through November 1	Access to Arcadia Trail; birding area
Shannon Campground	11	Vault	Tables and fire grills	April 15 through November 14	
Hospital Flat Campground	10	Vault flush	Tables and fire grills	April 15 through November 14	
Cunningham Campground	10		Fire grills	April 15 through November 14	Access to several trails; horse facilities
Soldier Creek Campground	12	Flush	Tables and fire rings	April 15 through November 14	Access to Grant Goudy Trail

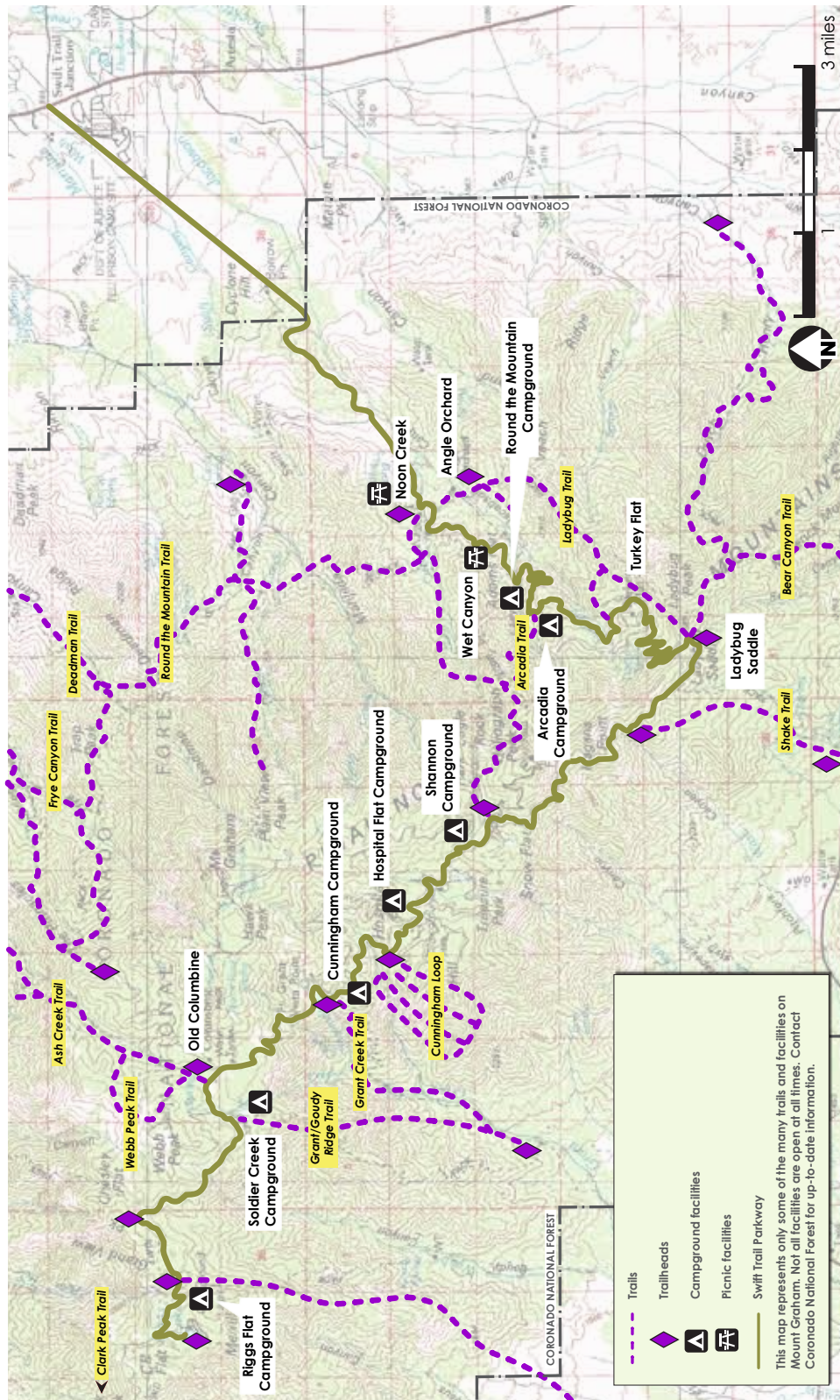


Figure 5: Recreational amenities

<i>Location</i>	<i>Sites</i>	<i>Toilets</i>	<i>Amenities</i>	<i>Open</i>	<i>Other</i>
Riggs Flat Campground	31 individual; 1 group	Vault	Tables and fire grills	April 15 through November 14	Fishing and boating on Riggs Flat Lake; access to several trails

<i>Trail</i>	<i>Miles</i>
Arcadia	5.1
Clark Peak	6.7
Bear Canyon	6
Deadman	3.4
Cunningham Loop	5.6
Ash Creek	8.2
Frye Canyon	2.8
Grant Creek	5.5
Grant/Goudy Ridge	6.4
Ladybug	5.9
Round the Mountain	15
Shake	5.1
Webb Peak	2.8

Trails are shown in Figure 5.

Restrooms

There are no restrooms except vault toilets at some of the picnic areas and campgrounds. There are no food or lodging vendors operating on the mountain.

Lodging and Dining

Safford has approximately 400 guest rooms in seven hotels plus a bed and breakfast proprietor. Several restaurants and fast food chains offer dining choices.

Shopping

The closest full-service shopping options are in Safford. There is a small market a half-mile from the junction of the Swift Trail Parkway and US 191, which offers last-minute necessities.

Emergency Services

Mount Graham Regional Medical Center, located in Safford, provides 24-hour emergency services.

Entertainment

Discovery Park, located in Safford, is the visitors' center for the Mount Graham International Observatory. It serves multiple purposes, including an education and entertainment retreat. The focus of the center is to emphasize the science and culture of the Gila Valley, from mining and agriculture to space exploration.⁸³ The

⁸³
⁸³ Discovery Park Campus, Eastern Arizona College, 2007. <http://www.eac.edu/discoverypark/> (accessed Novem-

park is run by Eastern Arizona College. Tours of the observatory start at Discovery Park.

A two-hour round trip from Safford is the Morenci Mine, one of North America's largest open-pit copper mines, owned by Freeport McMoRan, Inc. Bus tours of the mine are 2 1/2 hours and offer views into the operations of the mining processes.

The Eastern Arizona Museum and Historical Society and Graham County Courthouse are 2 of 25 historic buildings located in Safford.

The area has several hot springs: Kachina Hot Springs Mineral Spa, 6 miles south of Safford; Hot Well Dunes Recreation Area, 35 miles south of Safford; and Essence of Tranquility, 7 miles south of Safford.

Roper Lake State Park, located off US 191, 6 miles south of Safford, features picnic areas, campgrounds with shower and RV hook-ups, and a stocked lake with fishing jetty and boat launch ramp.

To the northeast is Coronado Trail (a portion of US 191), another Arizona Scenic Road, one of Arizona's byways with national designation. It is a 123 mile, 4- to 5-hour trip by car.

ISSUES

Traffic

Swift Trail Parkway is the only access road for Mount Graham and the facilities located there: the observatories, cabins, and recreational sites. It also is the only emergency route. The road is narrow with many switchbacks, little or no shoulder, steep grades, and few places for slow traffic to pull off. Demand is expected to grow, which could mean more large recreational vehicles and more traffic in general. Major roadway improvements could be difficult at best because of the steep terrain and the expressed desire to preserve natural resources.

In a study prepared by the Forest Service, its authors determined that 30 percent of visitors are local (Graham, Greenlee, and Cochise Counties), 50 percent are from Tucson, 10 percent are from Phoenix, and 10 percent are from "other" areas (1989).⁸⁴ With 60 percent of visitors being from Tucson and Phoenix, presumably to escape the heat, the interest in visiting Mount Graham and other natural areas within driving distance is expected to increase as population in those metro areas continues to increase.

Fires

Two major fires on Mount Graham were the Clark Peak fire in April 1996, which covered 6,700 acres, and the Nuttall Fire in June 2004, covering 29,000 acres.

⁸⁴ (Forest Service, 1991).

⁸⁴ *Mt. Graham Recreation Area Plan*, Coronado National Forest, Safford Ranger District, January 1991.

The forest is still dry because of the current regional drought and a bark beetle infestation⁸⁵ and therefore vulnerable to additional fires.

Water Quality

Dirt and dust from unpaved roads contributes to an increase in stream sediment, and stream use by humans can adversely affect stream bank vegetation when people trample vegetation and erode stream banks.

Flora and Fauna

The increased presence of humans may disturb wildlife and threaten plants.

VISION

A vision statement helps provide a picture of the corridor in the future. A vision statement for the *Swift Trail Parkway Corridor Management Plan* was developed by the stakeholder committee and reviewed by attendees at the public meetings.

Collaboratively manage the intrinsic qualities that tell the Swift Trail Parkway story, balance conservation with enhancements and improvements, and preserve the unique experience for future generations.

GOALS, OBJECTIVES, AND ACTIONS

GOAL 1 – Maintain and improve roadway conditions to safely accommodate travelers.

Objectives:

- ▶ Create safer road conditions for large and/or slow vehicles.
 - ✧ Provide pull-offs to allow large or slow vehicles to let smaller vehicles pass.
 - ✧ Reduce traffic speed at Wet Canyon bridge to minimize the likelihood of vehicles hitting the bridge, as they have done in the past. An alternative, as noted later under Goal 4, is to consider a new vehicular bridge at Wet Canyon, retaining the WPA-built bridge for pedestrian use only.
 - ✧ Limit and enforce the length of vehicles allowed on Swift Trail Parkway.
 - ✧ Reconsider the maximum length for vehicles that are allowed on the road to reduce cross over accidents, brake failures, and congestion due to slow climbing speeds of longer vehicles.
 - ✧ Increase enforcement of traffic regulations.
 - ✧ Selectively remove large trees that pose a hazard to drivers.
- ▶ Reduce congestion.
 - ✧ Provide locations for roadside parking associated with either a viewpoint location and/or visitor amenities (Ft. Grant Vista, New Shake Trailhead,

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⁸⁵ Southwestern Region, USDA Forest Service, 2007, <<http://www.fs.fed.us/r3/>> (accessed on December 4, 2007).

Ladybug Saddle, Grandview, and Clark Peak are recommended in the *Mt. Graham Recreation Area Plan*⁸⁶).

- ✧ Activate a shuttle tour for visitors who are just there for the scenic drive. Provide a tour guide or educational tape during the tour describing the intrinsic qualities of the parkway experience.
- ✧ Consider a limit to the number of vehicles on the mountain at any given time (i.e., “park full” signs).
- ▶ Improve signs and wayfinding.
 - ✧ Seek funding for a sign master plan.
 - ✧ Create an ADOT/Forest Service collaboration on a mutual sign package for consistency in color and style so visitors can easily find their destinations.
 - ✧ Consider more prominent signs at the beginning and end of the parkway that incorporate the Arizona Byway logo and a Swift Trail Parkway logo (see next page, Goal 2, third objective).
- ▶ Promote best management practices.
 - ✧ Emphasize the development of respectful and minimum impact maintenance protocols.

GOAL 2 – Assess potential and/or proposed improvements to identify construction and maintenance costs and funding sources.

Objectives:

- ▶ Identify sources for funding projects.
 - ✧ Look for opportunities to piggyback small projects onto larger improvement projects.
 - ✧ When building new byway improvements, consider future maintenance needs and funding as crucial elements of the project.
 - ✧ Plan for future renovations of improvements.
- ▶ Seek new opportunities for funding.
 - ✧ Consider funding signs through a “memorial” program where a family or individual sponsors donate a sign in memory of, or named for, an individual.
 - ✧ Continue to explore additional funding opportunities not listed in this document.
 - ✧ Look for funding to restore historic sites, such as the Jacobson Sawmill, which will then be additional visitor attraction to the parkway.
- ▶ Communicate to all interested or adversely affected parties how they can contribute.

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⁸⁶ *Mt. Graham Recreation Area Plan*, 1991.

- ✧ Develop a marketing plan that tracks visitor experience, suggests new road features with tourists in mind, and combines and coordinates resources with other regional marketing efforts.
- ✧ Keep media informed of activities along Swift Trail Parkway.
- ✧ Contact travel magazine or publication editors and explain why they should do a feature article on Swift Trail Parkway.
- ✧ Develop a Swift Trail Parkway logo that can be used on signs, brochures, fliers, etc. Encourage businesses to use the logo in their advertising to further promote the parkway.
- ✧ Consider creating a tag line for Swift Trail Parkway that captures the essence of the road. Use the tag line in all marketing materials.
- ✧ Coordinate a meeting with other Arizona byway groups to discuss mutual marketing opportunities. Contact the America's Byways Resource Center about leading a workshop in Safford or Tucson on developing a successful marketing plan.

GOAL 3 – Protect and conserve the natural resources and habitat.

Objectives:

- ▶ Preserve the unique sky island habitat for future generations to enjoy.
 - ✧ Continue to control access and limit intersecting roads.
 - ✧ Decrease impact to sensitive areas by directing visitors to improved recreational facilities.
 - ✧ Avoid crossing streams with trails.
 - ✧ Consider wildlife needs/crossings when designing roadway improvements.
 - ✧ Ensure any new landscape additions along the parkway are indigenous to the area and planted at similar densities to existing plants; imported soil must be weed-free.
 - ✧ Encourage people to stay on the designated trails to reduce impact to the mountain environment and to avoid spreading or introducing invasive weeds. Promote the Leave-No-Trace ethic.
 - ✧ Consider paving the road past the end of the existing pavement to reduce the amount of dirt and dust that will settle and pollute streams and creeks. Consider if there are other side roads, such as Scopes Road, that experience more traffic and thus generate dust, that could be paved.
 - ✧ Review the Forest Service fire management plan and fire prevention public education program. Keep discussions going with the Forest Service regarding fire management practices and what assistance it can use.
 - ✧ Educate the public on good stewardship.

- ✧ Provide trained volunteers during peak season to lead walks/discussions on the history and biotic communities found along Swift Trail Parkway.
- ✧ Provide a sufficient number of trash cans along Swift Trail Parkway and provide the resources for collecting the trash.
- Provide opportunities for travelers to stop and enjoy the scenery, both distant and near.
 - ✧ Provide scenic pull-offs.
 - ✧ Improve trailhead parking with more parking stalls and, if possible with interpretive signs and restrooms.
 - ✧ Develop a Swift Trail Parkway compact disc or podcast for car travelers, with information keyed to each milepost.
 - ✧ Develop podcasts for various topics of interest such as the biotic zones/sky islands or the CCC history.
 - ✧ Plan how to keep the byway “fresh” for return visitors such as seasonal interpretive plaques or plaques that explain different aspects of the byway story and are changed out periodically.
 - ✧ Consider developing a series of brochures on different topics: biology, history, one focused for children.
 - ✧ In addition to the existing panels (e.g., at Chesley Flat meadow), provide interpretive panels that explain the Swift Trail Parkway story and history. Panel text should be reviewed and approved by all stakeholder groups including, but not limited to, the Forest Service, ADOT, the San Carlos and White Mountain Apache Tribes, and Graham County. Additional panels might include:

<i>Location</i>	<i>Story</i>
Angle Orchard	Orchard history
Wet Canyon	CCC bridge and camp
Noon Creek	Historic travel half-way point
Ladybug Saddle	Collecting ladybugs for valley farms
Heliograph Peak	Mirror relay station and fire lookout
Treasure Park	The hidden treasure story
Hospital Flat	The summer army hospital
Red Squirrel	Endangered species

GOAL 4 – Preserve the historic and natural character in existing features while maintaining and honoring that character in new features.

Objectives:

- ▶ Preserve the pioneer character apparent in many features.
 - ✧ Use native materials to construct new features.
 - ✧ Restore the Noon Creek campground, a WPA-constructed facility, to pre-Nuttall Fire status.
 - ✧ Consider a new vehicular bridge at Wet Canyon, keeping the CCC bridge for pedestrian use only.

GOAL 5 – Develop relationships among organizations, agencies and public groups that support the management of the Swift Trail Parkway.

Objectives:

- ▶ Convene regularly so there is open dialog among interested groups.
 - ✧ Consider preparing a Memorandum of Understanding between all interested agencies to allow all parties to be involved in the byways future.
 - ✧ Take over maintenance of the Swift Trail website (www.swifttrailcmp.com) from the consultant and use it as a means of communication and information dissemination. Alternatively, or in addition to the website, start Facebook or Twitter accounts.
 - ✧ Create subtask groups as needed to deal with particular issues.
 - ✧ Continue to hold public forums to discuss Swift Trail Parkway issues.
 - ✧ Create a Swift Trail Parkway celebration day, if possible in conjunction with other Arizona byways.
 - ✧ Work with other Arizona byway committees to share ideas and opportunities.
 - ✧ Obtain publications from America's Byways Resources to assist in corridor management. Some of the options are *Making the Grassroots Grow: Community Guide to Planning and Managing a Scenic Byway*; *The Road Beckons: Best Practices for Byways*; *A Design Guide for Roadside Improvements*; *Scenic Byways: Building and Maintaining Effective Byway Organizations*.
 - ✧ Encourage new people to join the stakeholder committee to keep the group active and fresh.
- ▶ Communicate often about specific plans and partnering opportunities.
 - ✧ Work with historical societies and chambers of commerce about joint activities.

- ✧ Work with the Forest Service to use the existing Forest Service buildings, near Columbine, for Parkway needs or events.
- ✧ Work with local radio talk show programs to promote Swift Trail Parkway activities.
- ▶ Reach out to all parties interested in Swift Trail Parkway, its past and future.
 - ✧ Allow various groups to use the mountain in a manner consistent with and respectful of their traditions (e.g., plant gathering, making offerings).
 - ✧ Upgrade facilities where possible to meet changing recreational needs such as being ADA compliant. Remember that ADA applies not only to those with physical handicaps but also those with vision or hearing impairments or learning disabilities (go to www.fs.fed.us/recreation/programs/accessibility).
 - ✧ Organize school events to celebrate Mount Graham and its special qualities.
 - ✧ Contact local scouting organizations about badge-earning activities on the mountain.
 - ✧ Establish a Mount Graham historical club or society.
 - ✧ Promote Swift Trail Parkway's recreational opportunities and the health benefits associated with an active lifestyle.
 - ✧ Collect examples of promotion strategies from other byways around the country, such as these: a deck of custom playing cards with images drawn by local schoolchildren; an annual work day; public field trips; a local artist donated works of art of the byway which were then auctioned off to raise money.
- ▶ Expand the range of Swift Trail Parkway.
 - ✧ Consider including the roadway up to Riggs Flat Lake and back the US 191 intersection to in the official parkway designation. These additional segments are part of the overall Parkway experience. This would need to be coordinated with ADOT's Parkways, Historic and Scenic Roads Advisory Committee, the group charged with making final decisions on Arizona's state byways.
 - ✧ Nominate Mount Graham trails for inclusion in the Arizona State Trails System.

IMPLEMENTATION

Short Term

Hold first meeting of stakeholder group and establish guidelines for the group including:

- ▶ Pick a chairperson.
- ▶ Decide how often to meet in person, and when and where to meet (recommend once a year minimum).
- ▶ Decide whether anyone (and who) will manage the Swift Trail Parkway website and/whether a different form of outreach is appropriate, such as Facebook.

- ▶ Determine whether to go forward with procedures to submit a proposal for national designation.
- ▶ Determine how decisions will be made such as a un
- ▶ Start a list of ranked activities.
- ▶ Create subtask groups if needed.
- ▶ Form a plan to increase the size of the stakeholder committee and/or a plan for replacing members who resign.

Agencies Involved

Arizona Department of Transportation

The ADOT Safford District manages Swift Trail Parkway from its junction with US 191 to MP 143.2, after which it becomes a Forest Service road.

San Carlos Apache Tribe/White Mountain Apache Tribe

The San Carlos Apache tribal land encompasses 1.8 million acres east of Globe. The White Mountain Apache tribal land encompasses 1.7 million acres south of Show Low. Prior to an 1897 Executive Order, the San Carlos and White Mountain were one tribe. Mount Graham and the surrounding area were historically Apache land and remain sacred to all Apache tribes.

USDA Forest Service

The Forest System is governed by federal laws. All the campgrounds and picnic areas located on Mount Graham are operated by the Forest Service.

Arizona Game and Fish Department

The Arizona Game and Fish Department manages state wildlife and fisheries resources. It regulates hunting and fishing and oversees licensing. It also is responsible for monitoring and researching wildlife populations and conducts status surveys of the Mount Graham red squirrel.

US Fish and Wildlife Service

The US Fish and Wildlife Service listed the Mount Graham red squirrel as an endangered species in 1987. The Service's mission is to "[work] with others to conserve, protect and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people."

Cabin Owners Associations

There are two cabin owners associations (Turkey Flat and Columbine) that are actively interested in the future of the mountain and what improvements and developments take place.

City of Safford

As the gateway city to Mount Graham and Swift Trail Parkway, Safford has, among others interests, an economic interest in the mountain and the activities there.

Graham County Board of Supervisors

The Graham County Board of Supervisors has participated in, or expressed interest in, the future of Mount Graham and the economic and tourist activities there.

Graham County Chamber of Commerce

The Graham County Chamber of Commerce has participated in, or expressed interest in, the future of Mount Graham and the economic and tourist activities there.

Related Efforts

Other projects and coordination efforts are underway that should be reviewed periodically relative to the *Swift Trail Parkway Corridor Management Plan*. Known efforts include the *Coronado National Forest Land and Resource Management Plan*; the *Pinaleño Ecosystem Restoration Project*; Programmatic Agreements with ADOT relative to Swift Trail Parkway; and the eligibility of Mount Graham for listing in the National Register of Historic Places.

FUNDING AND FINANCING

Funding sources exist for projects within and outside of ADOT right-of-way, several of which are listed below. In the economic contraction and stagnation since 2008, many funding sources have been cut back, eliminated, or put on hold, so case-by-case research will be needed for future projects.

Arizona State Trails Program

Arizona State Parks' State Trails Program provides a number of benefits for trail users, organizations, and communities. The State Trails Program:

- ▶ Provides technical assistance to agencies and organizations
- ▶ Hosts trail conferences, trainings and education events
- ▶ Administers the State Motorized and Non-motorized Recreational Trails Plan.
- ▶ Serves as the clearing house for National Trails Day (the first Saturday in June)⁸⁷

<http://www.pr.state.az.us/partnerships/trails/statetrails.html>

Recreational Trails Program

Arizona State Parks administers the federal Recreational Trails Program (RTP) funds which were funded through 2009 by the *Safe, Accountable, Flexible,*

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⁸⁷ *Arizona State Trails Program*, Arizona State Parks, 2007, <<http://www.pr.state.az.us/partnerships/trails/statetrails.html>> (accessed on December 4, 2007).

Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). Extensions to SAFETEA-LU have continued funding through September 2011. There have been appropriation bills put forward to extend funding further but nothing final; however, a new grant cycle is currently underway with grants due to FHWA by January 6, 2012, so funding should be available into 2012, although levels of funding are not definitive. The RTP funds come from the Federal Highway Trust Fund. RTP funding is designed to enhance motorized and nonmotorized recreational trails. RTP funds are split into motorized, nonmotorized, and diverse use trail projects. The program focuses on trail development and maintenance based on the priorities identified in the *Arizona Trails 2005 Plan*.

<http://www.fhwa.dot.gov/safetealu/factsheets/rectrails.htm>

Foundation Center

Foundation Center is the nation's leading authority on philanthropy and is dedicated to serving grant seekers, grant makers, researchers, policy makers, the media, and the general public.

www.fdncenter.org

Grants.Gov

Grants.gov facilitates organizations in electronically finding and applying for more than \$400 billion in federal grants.

www.grants.gov

Heritage Fund Program

The Heritage Initiative sets aside \$20 million in Arizona Lottery revenues each year for parks, trails, and natural areas, historic preservation, and a full range of wildlife conservation activities.

www.gf.state.az.us/w_c/heritage_program.shtml

Highway Expansion and Extension Loan Program

HB 2488 established a comprehensive loan and financial assistance program for eligible highway projects in Arizona. The Highway Expansion and Extension Loan Program, or HELP, provides the State and communities in Arizona with a financing mechanism to accelerate transportation construction projects. These are 5-year loans, with a minimum amount of \$250,000.

www.dot.state.az.us/Inside_ADOT/HELP/index.asp

Highways Users Revenue Fund

Highways Users Revenue Fund funds are collected from taxes on motor fuels and other fees and charges related to the registration and operation of motor vehicles on the public highways of the state. These revenues are then distributed to the cities, towns, and counties and to the State Highway Fund. When available, they are a primary source of revenue to the State for highway construction and improvements and other related expenses.

www.dot.state.az.us/inside_adot/fms/hurflink.asp

Just Grants! Arizona

Just Grants! Arizona is a one-stop source for news, tools, and resources for and about Arizona's grants community.

www.azgrants.com

National Scenic Byways Discretionary Grants

The National Scenic Byways Discretionary Grants program “provides merit-based funding for byway-related projects each year,”⁸⁸ as part of the Federal Highway Administration's Discretionary Grants Program, funded through 2009 by the *Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users* (SAFETEA-LU). There have been appropriation bills put forward to extend funding further but nothing final; however, a new grant cycle is currently underway with grants due to FHWA by January 6, 2012, so funding should be available into 2012, although levels of funding are not definitive. Projects to support and enhance National Scenic Byways, All-American Roads, and state-designated byways are eligible. Applicants can be state, Metropolitan Planning Organizations, or local government agencies.

www.byways.org/ and

<http://www.fhwa.dot.gov/safetealu/factsheets/scenic.htm>

Trails Heritage Fund Grant

The Trails Heritage Fund Grant Program provides funding assistance for nonmotorized trail projects. Each year the Arizona Lottery contributes up to \$500,000 in new revenue to be available through a competitive grant process. The Arizona State Parks Board administers the program through the State Parks Grants Section. A trail must be included in the State Trails System to be eligible.

www.azstateparks.com/partnerships/grants/trails_hf.html

Transportation Enhancement Funds

Transportation enhancement activities have been eligible for funding under the Surface Transportation Program since its inception. In 2005, a component of the SAFETEA-LU, funded through 2009, helped “expand transportation choices and enhance the transportation experience.”⁸⁹ There have been appropriation bills put forward to extend funding further but nothing final; however, a new grant cycle is currently underway with grants due to FHWA by January 6, 2012, so funding should be available into 2012, although levels of funding are not definitive..

There are 12 eligible categories, several of which Swift Trail Parkway and the surrounding facilities fall under:

- ▶ Scenic or historic highway programs (including the provision of tourist and welcome center facilities)
- ▶ Landscaping and other scenic beautification

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⁸⁸ *Grants*, National Scenic Byways Program, 2007, <http://www.bywaysonline.org/grants/> (accessed December 4, 2007).

⁸⁹ *Welcome to Transportation Enhancements*, Federal Highways Administration, 2007, <<http://www.fhwa.dot.gov/environment/te/index.htm>> (accessed on December 4, 2007).

- ▶ Environmental mitigation – (i) to address water pollution due to highway runoff; or (ii) reduce vehicle-caused wildlife mortality while maintaining habitat connectivity

Funds provided are not grants, but reimbursements; the project sponsor must be prepared to pay all costs and then be reimbursed by the program. Sponsors can be state, Metropolitan Planning Organizations, or local government projects. The application process begins in the spring, and projects are awarded by the State Transportation Board in the fall. Currently, the annual budget for projects is \$10–14 million, with individual State projects (inside ADOT right-of-way) limited to \$1 million each and local projects (outside ADOT right-of-way) limited to \$750,000 each.

<http://www.fhwa.dot.gov/safetealu/factsheets/transenh.htm>

Treelink

Treelink offers an online fundraising tutorial sponsored by the USDA Forest Service.

www.treelink.org/grants

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